

<b>INVITATION TO BID</b>		<b>LSU</b>	<b>BID DUE DATE AND TIME</b>	
BOARD OF SUPERVISORS OF LOUISIANA STATE UNIVERSITY AND AGRICULTURAL & MECHANICAL COLLEGE			<b>01/31/2012</b>	<b>11:00 AM CT</b>
<b>SOLICITATION 000010924</b> VENDOR # VENDOR NAME AND ADDRESS <div style="border: 1px solid black; height: 100px; width: 300px; margin-top: 10px;"></div>			RETURN BID TO LSU LOUISIANA STATE UNIV. PURCHASING OFFICE 213 THOMAS BOYD HALL Baton Rouge LA 70803 BUYER Alexandra Torres BUYER PHONE (225)578-9398 ISSUE DATE 01/06/2012	

**TITLE: JUICE EXTRACTION SYSTEM-PILOT PLANT**

### To Be Completed By Bidder

1. \_\_\_\_\_ "No Bid" (sign and return this page only).
2. \_\_\_\_\_ My Company does not wish to receive future solicitations for this commodity code.
3. Specify your Delivery: To be made within \_\_\_\_\_ days after receipt of order.
4. Specify your Payment Terms: \_\_\_\_\_  
 Prompt payment cash discounts for less than 30 days and less than 1% will be accepted, but will not be considered in determining awards. On indefinite quantity term contracts, cash discounts will be accepted and taken, but will not be considered in determining awards.
5. Specify your Bid Reference Number: \_\_\_\_\_  
 (This number will appear on any resulting order or contract.)

### General Instructions to Bidders

1. Sealed bids for furnishing the items and/or services specified are hereby solicited, and will be received by the issuing LSU Campus/Department at the "Return Bid To" address stated above, until the specified due date and time.
2. Bids must be signed by a person authorized to bind the vendor. In accordance with Louisiana R.S. 39:1594, the person signing the bid must be: (1) a current corporate officer, partnership member, or other individual specifically authorized to submit a bid as evidenced in the appropriate records filed with the Louisiana Secretary of State; or (2) an individual authorized to bind the vendor as evidenced by a corporate resolution, certificate or affidavit; or (3) other documents indicating authority which are acceptable to the public entity.
3. Read the entire solicitation, including all terms, conditions and specifications.
4. All bid information and prices must be typed or written in ink. Any corrections, erasures or other forms of alteration to unit prices are to be initialed by the bidder.
5. Bid prices shall include all delivery charges paid by the vendor, F.O.B. LSU Destination, unless otherwise provided in the solicitation. Any invoiced delivery charges not quoted and itemized on the LSU purchase order are subject to rejection and non-payment.
6. Payment is to be made within 30 days after receipt of properly executed invoice, or delivery and acceptance, whichever is later. Delinquent payment penalties are governed by L.R.S. 39:1695.
7. By signing this solicitation, the bidder certifies compliance with all general instructions to bidders, terms, conditions and specifications; and further certifies that this bid is made without collusion or fraud.

BIDDER (Name of Firm)	MAILING ADDRESS
AUTHORIZED SIGNATURE	CITY, STATE ZIP
PRINTED NAME	PHONE #
TITLE	FAX #
E-MAIL	FEDERAL TAX ID #

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These standard terms and conditions shall apply to all LSU solicitations, unless otherwise specifically amended and provided for in the special terms and conditions, specifications, or other solicitation documents. In the event of conflict between the General Instructions to Bidders or Standard Terms & Conditions and the Special Terms & Conditions, the Special Terms & Conditions shall govern.

Bids submitted are subject to provisions of the laws of the State of Louisiana, including but not limited to: the Louisiana Procurement Code (R.S. 39:1551-1736); Purchasing Rules and Regulations (Title 34 of the Louisiana Administrative Code); Executive Orders; and the terms, conditions, and specifications stated in this solicitation.

**1. Bid Delivery and Receipt**

To be considered, sealed bids must be received and time-stamped at the "Return Bid To" address no later than the due date and time specified herein. Sealed bids cannot be accepted by telegraph, fax, or e-mail. Price alterations and addenda to bids may be submitted by telegraph or fax, and will be considered provided bidder's sealed bid, price alterations and addenda have been received in the purchasing office prior to bid opening time. Late bids cannot be accepted per L.A.C. 34:I.517, and shall be returned unopened.

**2. Bid Forms**

Bids are to be submitted on and in accordance with the LSU solicitation forms provided, and must be signed by an authorized agent of the vendor. Bids submitted on other forms or in other price formats may be considered informal and may be rejected in part or in its entirety. Bids submitted in pencil and/or bids containing no original signature indicating the bidder's intent to be bound will not be accepted.

**3. Interpretation of Solicitation/Bidder Inquiries**

If bidder is in doubt as to the meaning of any part or requirement of this solicitation, bidder may submit a written request for interpretation to the Buyer-of-Record at the address and/or fax number shown above. Written inquiries must be received in the Purchasing Office no later than five (5) calendar days prior to the opening of bids, and shall be clearly cross-referenced to the relevant solicitation/specification in question.

No decisions or actions shall be executed by any bidder as a result of oral discussions with any LSU employee or consultant. Any interpretation of the documents will be made by formal addendum only, issued by the Purchasing Office, and mailed or delivered to all bidders known to have received the solicitation. LSU shall not be responsible for any other interpretations or assumptions made by bidder.

**4. Bid Opening**

Bidders may attend the public bid opening of sealed bids and proposals. No information or opinions concerning the ultimate contract award will be given at bid opening or during the evaluation process. Written bid tabulations will not be furnished. Bids may be examined within 72 hours after bid opening. Information pertaining to completed files may be secured by visiting the Purchasing Office during normal working hours.

**5. Special Accommodations**

Any "qualified individual with a disability" as defined by the Americans with Disabilities Act, who has submitted a bid and desires to attend the public bid opening, must notify the Purchasing Office in writing not later than seven days prior to the bid opening date of their need for special accommodations. If the request cannot be reasonably provided, the individual will be informed prior to the bid opening.

**6. Standards of Quality**

Any product or service bid shall conform to all applicable federal, state and local laws and regulations, and the specifications contained in the solicitation. Any manufacturer's name, trade name, brand name, or catalog number used in the specification is for the purpose of describing the standard of quality, performance, and characteristics desired; and is not intended to limit or restrict competition. Bidder must specify the brand and model number of the product offered in his bid. Bids not specifying brand and model number shall be considered as offering the exact product specified in the solicitation.

**7. New Products/Warranty/Patents**

All products bid for purchase must be new, never previously used, of the manufacturer's current model and/or packaging, and of best quality as measured by acceptable trade standards. No remanufactured, demonstrator, used or irregular products will be considered for purchase unless otherwise specified.

The manufacturer's standard published warranty and provisions shall apply, unless more stringent warranties are otherwise required by LSU and specified in the solicitation. In such cases, the bidder and/or manufacturer shall honor the specified warranty requirements, and bid prices shall include any premium costs of such coverage.

Bidder guarantees that the products proposed and furnished will not infringe upon any valid patent or trademark; and shall, at its own expense, defend any and all actions or suits charging such infringement, and shall save LSU harmless.

**8. Descriptive Information**

Bidders proposing an equivalent brand or model are to submit with the bid descriptive information (such as literature, technical data, illustrations, etc) sufficient for LSU to evaluate quality, suitability, and compliance with the specifications. Failure to

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submit descriptive information may cause bid to be rejected. Any changes made by bidder to a manufacturer's published specifications shall be verifiable by the manufacturer. If items bid do not fully comply with specifications, bidder must state in what respect items deviate. Bidder's failure to note exceptions in its bid will not relieve the bidder from supplying the actual products requested.

#### 9. Bids/Prices/F.O.B. Point

- The bid price for each item is to be quoted on a "net" basis and F.O.B. LSU Destination, i.e. title passing upon receipt and inclusive of all delivery charges, any item discounts, etc.
- Bids other than F.O.B. LSU Destination may be rejected.
- Bids indicating estimated freight charges may be rejected.
- Bids requiring deposits, payment in advance, or C.O.D. terms may be rejected.
- Bidders who do not quote "net" item prices and who separately quote an overall "lump sum" freight cost or discount for all items shall be considered as submitting an "all-or-none" bid for evaluation and award purposes; and risk rejection if award is made on an item basis.
- Prices shall be firm for acceptance for a minimum of 30 days, unless otherwise specified. Bids conditioned with shorter acceptance periods may be rejected.
- Prices are to be quoted in the unit/package specified (e.g. each, 12/box, etc), or may be rejected.
- In the event of extension errors, the unit price bid shall prevail.

#### 10. Taxes

Vendor is responsible for including all applicable taxes in the bid price. LSU is exempt from all Louisiana state and local sales and use taxes. By accepting an award, resident and non-resident firms acknowledge their responsibility for the payment of all taxes duly assessed by the State of Louisiana and its political subdivisions for which they are liable, including but not limited to: franchise taxes, privilege taxes, sales taxes, use taxes, ad valorem taxes, etc.

#### 11. Terms and Conditions

This solicitation contains all terms and conditions with respect to the purchase of the goods and/or services specified herein. Submittal of any contrary terms and conditions may cause your bid to be rejected. By signing and submitting a bid, vendor agrees that contrary terms and conditions which may be included in its bid are nullified; and agrees that this contract shall be construed in accordance with this solicitation and governed by the laws of the State of Louisiana.

#### 12. Vendor Forms/LSU Signature Authority

The terms and conditions of the LSU solicitation and purchase order/contract shall solely govern the purchase agreement, and shall not be amended by any vendor contract, form, etc.

The University's chief procurement officer, or authorized designee, is delegated sole authority to execute/sign any vendor contracts, forms, etc, on behalf of LSU. Departments are expressly prohibited from signing any vendor forms.

Any such vendor contracts/forms bearing unauthorized signatures shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom. Vendors who present any such forms to department users for signature without regard to this strict LSU policy may face contract cancellation, suspension, and/or debarment.

#### 13. Awards

Award will be made to the lowest responsible and responsive bidder. LSU reserves the right: (1) to award items separately, grouped, or on an all-or-none basis, as deemed in its best interest; (2) to reject any or all bids and/or items; and (3) to waive any informalities.

All solicitation specifications, terms and conditions shall be made part of any subsequent award as if fully reproduced and included therein, unless specifically amended in the formal contract.

#### 14. Acceptance of Bid

Only the issuance of an official LSU purchase order/contract, a Notification of Award letter, or a Notification of Intent to Award letter shall constitute the University's acceptance of a bid. LSU shall not be responsible in any way to a vendor for goods delivered or services rendered without an official purchase order/contract.

#### 15. Applicable Law

All contracts shall be construed in accordance with and governed by the laws of the State of Louisiana.

#### 16. Awarded Products/Unauthorized Substitutions

Only those awarded brands and numbers stated in the LSU contract are approved for delivery, acceptance, and payment purposes. Any substitutions require prior approval of the Purchasing Office. Unauthorized product substitutions are subject to rejection at time of delivery, post-return at vendor's expense, and non-payment.

#### 17. Testing/Rejected Goods

Vendor warrants that the products furnished will be in full conformity with the specification, drawing or sample, and agrees that this warranty shall survive delivery, acceptance, and use. Any defect in any product may cause its rejection. LSU reserves the right to test products for conformance to specifications both prior to and after any award. Vendor shall bear the cost of testing

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if product is found to be non-compliant. All rejected goods will be held at vendor's risk and expense, and subject to vendor's prompt disposition. Unless otherwise arranged, rejected goods will be returned to the vendor freight collect.

**18. Delivery**

Vendor is responsible for making timely delivery in accordance with its quoted delivery terms. Vendor shall promptly notify the LSU Department and/or Purchasing Office of any unforeseen delays beyond its control. In such cases, LSU reserves the right to cancel the order and to make alternative arrangements to meet its needs.

**19. Default of Vendor**

Failure to deliver within the time specified in the bid/award will constitute a default and may be cause for contract cancellation. Where the University has determined the vendor to be in default, LSU reserves the right to purchase any or all goods or services covered by the contract on the open market and to surcharge the vendor with costs in excess of the contract price. Until such assessed surcharges have been paid, no subsequent bids from the defaulting vendor will be considered for award.

**20. Vendor Invoices**

Invoices shall reference the LSU purchase/release order number, vendor's packing list/delivery ticket number, shipping/delivery date, etc. Invoices are to be itemized and billed in accordance with the order, show the amount of any prompt payment discount, and submitted on the vendor's own invoice form. Invoices submitted by the vendor's supplier are not acceptable.

**21. Delinquent Payment Penalties**

Delinquent payment penalties are mandated and governed by Louisiana R.S. 39:1695. Vendor penalties to the contrary shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom.

**22. Assignment of Contract/Contract Proceeds**

Vendor shall not assign, sublet or transfer its contractual responsibilities, or payment proceeds thereof, to another party without the prior written consent and approval of the Purchasing Office. Unauthorized assignments of contract or assignments of contract proceeds shall be null and void, shall have no legal force, and shall not be recognized by LSU in any dispute arising therefrom.

**23. Contract Cancellation**

LSU has the right to cancel any contract for cause, in accordance with purchasing rules and regulations, including but not limited to: (1) failure to deliver within the time specified in the contract; (2) failure of the product or service to meet specifications, conform to sample quality or to be delivered in good condition; (3) misrepresentation by the vendor; (4) fraud, collusion, conspiracy or other unlawful means of obtaining any contract with the University; (5) conflict of contract provisions with constitutional or statutory provisions of state or federal law; (6) any other breach of contract.

LSU has the right to cancel any contract for convenience at any time by giving thirty (30) days written notice to the vendor. In such cases, the vendor shall be entitled to payment for compliant deliverables in progress.

**24. Prohibited Contractual Arrangements**

Per Louisiana R.S. 42:1113.A, no public servant, or member of such a public servant's immediate family, or legal entity in which he has a controlling interest shall bid on or enter into any contract, subcontract, or other transaction that is under the supervision or jurisdiction of the agency of such public servant. See statute for complete law, exclusions, and provisions.

**25. Equal Employment Opportunity Compliance**

By submitting and signing this bid, vendor agrees to abide by the requirements of the following as applicable: Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Opportunity Act of 1972; federal Executive Order 11246; federal Rehabilitation Act of 1973, as amended; the Vietnam Era Veteran's Readjustment Assistance Act of 1974; Title IX of the Education Amendments of 1972; the Age Act of 1975; the Americans with Disabilities Act of 1990. Vendor agrees not to discriminate in its employment practices, and will render services under any contract entered into as a result of this solicitation without regard to race, color, religion, sex, age, national origin, veteran status, political affiliation, handicap, disability, or other non-merit factor. Any act of discrimination committed by vendor, or failure to comply with these statutory obligations when applicable, shall be grounds for termination of any contract entered into as a result of this solicitation.

**26. Mutual Indemnification**

Each party hereto agrees to indemnify, defend, and hold the other, its officers, directors, agents and employees harmless from and against any and all losses, liabilities, and claims, including reasonable attorney's fees arising out of or resulting from the willful act, fault, omission, or negligence of the indemnifying party or of its employees, contractors, or agents in performing its obligations under this agreement, provided however, that neither party hereto shall be liable to the other for any consequential damages arising out of its willful act, fault, omission, or negligence.

**27. Certification of No Suspension or Debarment**

By signing and submitting this bid, bidder certifies that its company, any subcontractors, or principals thereof, are not suspended or debarred under federal or state laws or regulations. A list of parties who have been suspended or debarred by federal agencies is maintained by the General Services Administration and can be viewed on the internet at [www.epls.gov](http://www.epls.gov).

PRICE SHEET		INVITATION TO BID				PAGE 5
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ITEM No.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT	
	<p>UNLESS SPECIFIED ELSEWHERE, SHIP ALL ITEMS TO:</p> <p>LSU</p> <p>LSU AgCenter</p> <p>Audubon Sugar Institute</p> <p>3845 Highway 75</p> <p>Saint Gabriel, LA 70776</p> <p>ALL-OR-NONE AWARD: It is the intent of the University to award all items on an all-or-none basis to the overall lowest responsive and responsible bidder.</p>					
0001	<p>Commodity Code: 020-74</p> <p>Item 0101 - Cane Receipt Hopper/Feed Deck, per attached specifications, terms and conditions.</p>	1.00	EA	\$ _____	\$ _____	
0002	<p>Commodity Code: 020-74</p> <p>Item 0102 - Main Cain Conveyor, per attached specifications, terms and conditions.</p>	1.00	EA	\$ _____	\$ _____	
0003	<p>Commodity Code: 020-74</p> <p>Item 0103 - Cane Knives, per attached specifications, terms and conditions.</p>	2.00	EA	\$ _____	\$ _____	
0004	<p>Commodity Code: 020-74</p> <p>Item 0104 - Magnet, per attached specifications, terms and conditions.</p>	1.00	EA	\$ _____	\$ _____	

**PRICE SHEET****INVITATION TO BID**

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ITEM No.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
0005	Commodity Code: 020-74 Item 0105 - Shredder, per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____
0006	Commodity Code: 020-74 Item 0106 - 1st Mill Feed Elevator, per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____
0007	Commodity Code: 020-74 Item 0107 - Bagasse Conveyor (covered), per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____
0008	Commodity Code: 020-74 Item 0201 - Cane Milling Plant, per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____
0009	Commodity Code: 020-74 Item 0202 - Mixed Juice Screen, per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____
0010	Commodity Code: 020-74 Item 0301 - Automation System, per attached specifications, terms and conditions.	1.00	EA	\$ _____	\$ _____

PRICE SHEET		INVITATION TO BID			PAGE 7	
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ITEM No.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT	
0011	Commodity Code: 020-74 Item 1001 - Painting, per attached specifications, terms and conditions.	1.00	LOT	\$ _____	\$ _____	

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- 01 Sealed Bid Delivery Instructions and Advisory: To assure consideration, your bid must be submitted in a sealed envelope or package and should be clearly and prominently marked with the solicitation number and bid due date, or may be submitted using the special bid return label if one was furnished for that purpose. Bidders are advised that the U.S. Postal Service does not make deliveries to our physical location. USPS mail is delivered to the University's mail center and is redelivered using internal resources. Bidders may deliver bids by hand or by a courier service to our physical location at the "Return Bid To" address specified. The University shall not be responsible for any delays caused by the Bidder's chosen means of bid delivery. Bidder is solely responsible for the timely delivery of its bid, and failure to meet the bid due date and time shall result in rejection of the bid. Your attention is also directed to Standard Terms & Conditions No. 1 - Bid Delivery and Receipt.
- 02 FOB POINT/FREIGHT: Price must be quoted FOB DESTINATION, title passing upon receipt; and must be inclusive of any and all costs of shipping, handling, transportation, delivery, fuel, fuel surcharges, etc.
- 03 A preference, if applicable, may be allowed for products produced, manufactured, assembled, grown or harvested in Louisiana. Do you claim this preference? Yes \_\_\_\_\_ No \_\_\_\_\_. Note: Preferences shall not apply to service contracts. Is your Louisiana business workforce composed of a minimum of fifty percent Louisiana residents? Yes \_\_\_\_\_ No \_\_\_\_\_. Specify Item Number and location within Louisiana where the product is/was produced, manufactured, assembled, grown or harvested: \_\_\_\_\_ Note: This preference is not applicable for services.
- 04 U.S. PRODUCT PREFERENCE: IN ACCORDANCE WITH RS 39:1595.7, IN THE EVENT A CONTRACT IS NOT ENTERED INTO FOR LA PRODUCTS PURCHASED UNDER THE PROVISIONS OF RS 39:1595, ANY PERSON WHO PURCHASES MATERIALS, SUPPLIES, PRODUCTS, PROVISIONS, OR EQUIPMENT UNDER THE PROVISIONS OF THIS CHAPTER MAY PURCHASE SUCH ITEMS WHICH ARE MANUFACTURED (MADE) IN THE U.S., & EQUAL IN QUALITY TO NON-U.S. ITEMS PROVIDED THAT ALL OF THE FOLLOWING CONDITIONS ARE MET: 1. COST OF SUCH ITEMS DOES NOT EXCEED COST OF OTHER ITEMS WHICH ARE MADE OUTSIDE THE U.S. BY MORE THAN 5%. 2. THE VENDOR OF SUCH ITEMS AGREES TO SELL THE ITEMS AT THE SAME PRICE AS THE LOWEST BID OFFERED ON SUCH ITEMS. 3. IN CASES WHERE MORE THAN ONE BIDDER OFFERS ITEMS MADE IN THE U.S. WHICH ARE WITHIN 5% OF THE LOWEST BID, THE BIDDER OFFERING THE LOWEST BID ON SUCH ITEMS IS ENTITLED TO ACCEPT THE PRICE OF THE LOWEST BID MADE ON SUCH ITEMS. 4. THE VENDOR CERTIFIES THAT SUCH ITEMS ARE MADE IN THE U.S. FOR THE PURPOSES OF THIS PREFERENCE, (1) "MANUFACTURED &/OR MADE IN THE U.S." MEANS PRODUCED BY A PROCESS IN WHICH THE MANUFACTURING, FINAL ASSEMBLY, PROCESSING, PACKAGING, TESTING, & ANY OTHER PROCESS THAT ADDS VALUE, QUALITY, OR RELIABILITY TO ASSEMBLED ARTICLES, MATERIALS, OR SUPPLIES, OCCUR IN THE U.S. (2) "U.S." MEANS THE U.S. & ANY PLACE SUBJECT TO THE JURISDICTION OF THE U.S. DO YOU CLAIM THIS PREFERENCE? \_\_\_\_\_ YES. SPECIFY LINE NUMBER(S): \_\_\_\_\_ SPECIFY U.S. LOCATION WHERE THIS PRODUCT IS MADE: \_\_\_\_\_
- 05 LSU is a member of the National Association of Educational Procurement (NAEP) and the E & I Cooperative Purchasing Service.
- 06 The Terms and Conditions (terms) of this solicitation will govern unless the University deems it in its best interest to negotiate additional terms with the successful vendor. The University shall only consider those



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terms submitted with the vendor's bid and those not in conflict with Louisiana law and University policy.

Non-negotiable terms include but are not limited to: taxes, audit/retention of records, assignment of contract, EEOC/ADA compliance, governing law, etc. LSU Office of Purchasing must approve the final contract form and issue a Purchase Order (where applicable) to complete the process.

- 07 Please note attached insurance requirements. Successful bidder will be required to furnish a certificate of insurance evidencing required coverages and naming the Board of Supervisors of Louisiana State University and Agricultural and Mechanical College as an additional insured on all liability policies.

## GENERAL DESCRIPTION OF REQUIREMENTS

The successful bidder is to provide a Juice Extraction System for milling sorghum and high fiber sugar cane at the Audubon Sugar Institute located in Saint Gabriel Louisiana. The equipment required is described in the written specifications and a general equipment layout drawing is provided for informational purposes only. After bid award, the contractor will be required to submit a detailed equipment layout drawing, which will be subject to approval by the customer. The bid submittal shall include an explanation of any item that differs from that specified, the explanation shall demonstrate why the proposed equipment is better or equal to the specifications. In addition, the bid submittal shall include the bidders customer references on the form provided.

Start-up and Commissioning – Start-up personnel shall be provided by the contractor in order to demonstrate that the performance requirement of one operator loading feedstock and one operator at the control screen can be met for a period of no less than six hours of continuous operation in automated mode. Final acceptance of the Juice Extraction System will take place after the contractor has demonstrated the performance level described above for a period of no less than six continuous hours of faultless operation.

## **ITEM SERIES 0500**

### **Experience**

The State desires that the bidder has been in the business of successfully manufacturing and commissioning multi-stage plants of similar type and capacity as the one described in this bid document.

### **Customer Reference**

The State requires that the bidder supply two (2) customer references with the bid. The references shall be for jobs which are of similar size, scope, and complexity to this bid document. The State shall contact the references to determine the bidder's qualifications, experience, past and present performance, and ability to meet contract obligations. Information received from the references shall be evaluated. Bidders shall submit reference information on the form provided.

### CUSTOMER REFERENCES

<b>Reference 1:</b>	<b>Contact Information:</b>
Company Name	Phone Number
Contact Person	Email Address
Comments	

<b>Reference 2:</b>	<b>Contact Information:</b>
Company Name	Phone Number
Contact Person	Email Address
Comments	

## L.S.U. AgCenter – Audubon Sugar Institute

### Juice Extraction System - Pilot Plant

#### EQUIPMENT, MATERIALS & SPECIFICATIONS

##### ITEM SERIES 0100

##### CANE HANDLING AND PREPARATION

Item	Quantity	Description
0101	One (1)	<u>Cane Receipt Hopper/Feed Deck</u> – An above ground, cane receiving hopper and feed deck to accept 72" wide skid-steer front-end loader, bucket loads of billeted cane or sorghum in the receiving hopper section and meter a constant feed up an inclined deck. The inclination angle of the deck will permit excess cane to gravitate back into the cane receiving hopper whilst conveyed and elevated cane will discharge from the top of the inclined deck, where the head sprockets for the drag chains are positioned, and fall on to the Main Cane Conveyor (Item 0102).

The construction of the receipt hopper and feed deck is to be from standard U.S. structural steel sections and plated surfaces, chutes and deck plates are to be fabricated from ASTM A36 steel plate with all bolted components and connections to meet ASTM A325 Standard Specification. Hopper walls are to be made from SAE 1010 (C1010 or AISI 1010) cold rolled carbon steel sheet whilst the Deck Floor, Deck Stiffeners, support columns and beams are all to be fabricated from ASTM A36 steel.

The drag chain is to be a 3" pitch, forged steel link with suitable pivotal attachments for ASTM A36 steel drag bars of either angle or hollow section to suit the cane billet size and deck inclination angle. Drag Chain head sprockets are to be of the 'split' type for ease of replacement and are to be fabricated from ASTM A36 steel plate. As the head and tail sprockets will be on fixed centers, the drag chain tension on the upper feed deck will be maintained by the appropriate amount of additional chain on the lower return strands to form a guided catenary for all drag chain return strands.

The drive to the set of drag chains, tines and/or drag bars on the inclined deck will be a variable speed, shaft mounted, geared motor with a flange-mounted, inverter duty 220/440 volt AC, 60Hz., 4 pole, 3 Ph., TEFC induction motor. The signal to control the speed of this drive to the feed deck will be managed by the variable frequency drive (VFD) electronics through an interface with the automation phase of the plant.

0102

One (1) Main Cane Conveyor – An inclined, sorghum and billet cane, 14" wide rubber top covered, 'slider' belt type conveyor, capable of transferring feedstock from the discharge of the Feed Deck (Item 0101) and at 90° to its axis.

This conveyor, supplied and fitted with a 'floating' 'Load Cell' operated, running-weight detection scale arrangement under the cane receiving section (feed deck fall section) from Item 0101, will provide the required signal feed to the automation electronics and will discharge into the Shredder (Item 0105) after passing beneath two Cane Knives (Item 0103).

A 304 stainless steel sheet is to be incorporated under the feed deck, cane fall area in order to 'flatten' the top surface of the conveyor belt and evenly distribute the weight of feedstock on the belt as this is the length where the scale described above will be installed. Further 304 stainless steel sheets are to be fitted under the conveyor belt below each cane knife so as to ensure that the knifing action is against an even and flat feedstock face. All 304 stainless steel, conveyor belt support plates are to be smooth, polished and of adequate thickness or substantial backing support to ensure flat and even surfaces for the conveyor belt to run on.

In the open belt lengths, standard 'CEMA' type, flat-belt idler rollers are to be installed to support the conveyed feedstock load. The rubber top covered, slider belt will be mounted on a head and tail pulley complete with SAE 1045 carbon steel shafts. The tail pulley is to be fully adjustable to allow for conveyor belt tracking and alignment and will be of a 'self cleaning' design so as prevent any build-up of cane fibers between the inner surfaces of the belt and the tail pulley. An approved belt cleaning device is required on the inner surface of the belt so as to remove any extraneous matter from the inside belt surfaces.

The tail pulley and shaft assembly is to be mounted at both ends on outboard belt tensioning, self aligning, spherical roller, bearing units. The drive end head pulley shaft is to be mounted on split, foot-mounted pillow block, spherical roller, bearing units. Separate grease fittings are to be supplied for each bearing unit.

One side of the drive pulley shaft is to be machined for the shaft-mounted geared motor. At the discharge end of the belt, a rotary kicker is to be provided to project the cane flow over the shredder chute magnet area, in order to obtain maximum magnetic efficiency in collecting ferrous debris.

The drive is to be a shaft mounted, geared motor with a flange-mounted, inverter duty 220/440 volt AC, 60Hz., 4 pole, 3 Ph., TEFC induction motor. The signal to control the speed of this drive to this conveyor will be managed by the VFD electronics through an interface with the automation phase of the plant.

0103 Two (2) Cane Knives – Primary and secondary, contra-rotating. cane knives positioned above the Main Cane Conveyor (Item 0102) belt, independently driven and adjustable to prepare the feedstock for the following shredding operation so as to achieve a P.I. (Preparation Index) of 92% (open cells). A knife housing (cane knife house) with feedstock inlet and outlet, flexible, overlapped, vinyl sheet slats (acting as ‘curtains’) are required over both knives to contain and return all knife-generated feedstock particles back onto the conveying belt.

The Cane Knife rotor shafts will support knife holders with 3 palms; each palm is to be fitted with a ‘bolted-in-place’ knife. These knife bolts are to be high tensile steel machine bolts with self-locking ‘Nyloc’ type nuts.

Concentric, ASTM A36, steel plate spacers are required between knives holders.

Each Cane Knife Rotor shaft is to have a machined keyway to install a key which will positionally lock the rotor arms to the shaft and at each end of the shaft there will be a threaded length to accommodate the lock nuts that will clamp the complete knife rotor assembly and also center the assembly within the knife house walls.

The 1<sup>st</sup> and 2<sup>nd</sup> cane knife rotor assemblies are to have a ‘swept’ outside diameter of 29" (737 mm.) and rotational speeds of 600 and 750 rpm respectively. The actual cane knives are to be made from tempered steel with sharp, machine-ground, cutting edges on both the leading and trailing edges (so that ‘dull’ blades may be turned through 180° to expose sharp cutting edges), in preference to plain carbon steel with hard facing cutting edges. If cast iron flywheels are incorporated in the cane knife rotors, they are to be installed with a key and lock nut on the shaft side opposite to the knives drive side. The diameter of the cane knife shafts is to be designed to accommodate maximum cane-knifing induced load plus the additional kinetic energy transmitted during acceleration and deceleration of the fly wheeled rotors.

Each cane knife drive will be through multiple ‘matched’ sets of “V” belts and pulleys on the rotor and drive motor shafts with an OSHA approved belt guard of steel sheet and expanded metal.

Each drive motor will be, a minimum of 7.5 HP, induction motor 220/440 volt AC, 60Hz, 4 pole, 3Ph.TEFC. Signals to indicate status of the motors (on/off) are to be supplied from the motor starters to the automation system.

Note: It is recommended to install soft starters with electronic I/O to all fixed speed motors.

Knife Housings are to be fabricated from SAE 1010, minimum 1/8" thick, steel sheet and securely bolted to the conveyor structure. No hinged-type housings will be accepted.

The Knife rotors and drive supports are to be separate from the conveyor structure and are to be fabricated from ASTM A36 carbon steel. Structural sections and plates will be used for the fabrication of columns, beams, stiffeners and frames of the supporting structures for the knives and their drives, and will be anchored to the main supporting structure of the Main Cane conveyor. For maintenance purposes, a work platform with checkered A36 plate and A106 C-40 pipe stanchions for handrails plus an access ladder is to be provided and installed on the non drive side of the knife rotors.

- 0104     One (1)     Magnet – An electro magnet, positioned on the inlet chute to the Shredder (Item 0105). Power supply to the silicon rectifier DC power unit would be 220 or 440VAC 60HZ. The electromagnet is to be enclosed in a water tight box and will have the same width of the shredder chute. Components in contact with this magnet, will be non-magnetic. A gate in the chute under the Electro magnet is to be provided to automatically open by means of a pneumatic actuator when the equipment stops in order to pick up collected debris attracted by the magnet. This gate will close automatically when the equipment is restarted.
- 0105     One (1)     Shredder – Impact type, vertical top fed, swinging hammer, shredder rotating at a minimum of 1200 rpm (6 pole), complete with hard-faced and rebuildable tip hammers, swing-back washboard (on overload) and outboard spherical roller bearing units with oil lubrication facilities. The completed shredder rotor with new hammers in situ, is to be statically and dynamically balanced prior to delivery and site installation. The Shredder unit must be capable of processing billet energy cane (Louisiana variety L79-1002 at 26% fiber) to a preparation index of at least 92%. The drive is to be fixed speed from an electric TEFC, minimum 15 HP, 220/440VAC.60 Hz., 3 Ph., 6 pole (1200rpm) induction motor, transmitting power to the shredder through a flexible coupling. The shredder motor status is to be supplied from a soft start with I/O to the automation system.
- 0106     One (1)     1<sup>st</sup> Mill Feed Elevator – Up to 45°, Inclined, shredded cane feed, cleated belt elevator with molded rubber slats or Chain & Slat scraper type, to elevate the feedstock feed into the 1<sup>st</sup> Mill, (Item 0201). A by-pass chute to by-pass the 1<sup>st</sup> Mill is to be incorporated at the discharge end. The drive to this elevator head pulley is to be by a shaft mounted, geared motor with a flange-mounted, inverter duty 220/440 volt AC, 60Hz., 4 pole, 3 Ph., TEFC induction motor. The signal to control the speed of this drive to this conveyor will be managed by the VFD electronics through an interface with the automation phase of the plant.
- Materials of construction for this elevator will be:  
 Conveyor walls:                     SAE 1010 cold rolled sheet  
 Floor:                                     ASTM A36 structural steel plate  
 Wall stiffeners:                     ASTM A36 structural angles  
 Support Columns and Beams:     ASTM A36 structural steel H & I beams
- 0107     One (1)     Bagasse Conveyor (covered) – A covered conveyor (approximately 15 feet long) will be provided after the last milling tandem to remove the bagasse from the pilot plant building and dump it into a trailer parked directly alongside the outside wall. The exact length and height of the conveyor will be determined when the location and dimensions of the milling tandem are finalized.



## ITEM SERIES 0200

### MILLING & JUICE SCREENING

Item	Quantity	Description
0201	One (1)	<p><u>Cane Milling Plant</u> – A Four-Roll Milling Tandem, 4 stage milling plant, capable of processing 1 short ton per hour of prepared feedstock including energy cane (Louisiana variety L79-1002 at 13% fiber = 520 lbs. dry fiber/hour). The feedstock of cane and sweet sorghum will have a variable fiber content of 11% to 26% with imbibition being applied at the rate of up to 300% on fiber. The milling plant is to be provided complete with:</p> <ol style="list-style-type: none"> <li>1. Fabricated, structural steel base frame and legs to support all 4 mills.</li> <li>2. Mill 'Cheek' plates ( housings) to be in solid ASTM A36 steel plate with machined bearing surfaces and stress relieved.</li> <li>3. Mill Rolls, 'V' and Chevron grooved from cast iron shells, shrink fitted on SAE-1045 steel shafts.</li> <li>4. Three (3) Main Rolls, Bearings will be SAE 64 bronze in sliding housings. 4<sup>th</sup> feeder roll shaft bearings will be fabricated in A36 steel and will include a SAE 64 bushing to be foot mounted with bolts in mill cheek plate platforms.</li> <li>5. Mechanical, top roll 'float' adjustment and pressure loading by means of a stack of Belleville springs discs acting over a steel plunger that applies pressure over the top roll shaft bearings. The pressure to the top roll is adjusted by the manual compression of the spring stack through a threaded jack screw on the pressure head cover that pushes down a pressure plate over the disc springs; the pressure is proportional to the deformation of the springs. Maintenance of the plunger and Belleville springs will be accomplished by removing the pressure head cover. The springs will operate immersed in heavy oil or grease to avoid corrosion stress fractures.</li> <li>6. Manually adjustable, 2<sup>nd</sup> and 3<sup>rd</sup> Mill Roll openings, by means of a jack screw with a jam nut threaded through the Mill cheek, hinged covers holding the roll bearings in position.</li> <li>7. Manually adjustable, cast steel, toothed 'Trash Plate' between the 2<sup>nd</sup> and 3<sup>rd</sup> Mill Rolls.</li> <li>8. Manually adjustable, spring loaded, 'Groove Scrapers' for 1<sup>st</sup> &amp; 3<sup>rd</sup> (top &amp; discharge) rolls.</li> <li>9. ASTM A36 steel, mill roll crown wheels (pinion, gear) with a width to allow for maximum absorbed or generated power and torque with a heavy duty involute tooth profile to suit maximum and minimum mill roll centers.</li> <li>10. 304 Stainless steel, expressed juice, collection trays shaped with sloping bottom surfaces to one, side discharge, flanged outlet for connection to juice stage pumps.</li> <li>11. Brevinni, Bonfiglioli or equal, Epicyclic Planetary Shaft-mounted, TEFC, inverter duty, 220/440 volt AC, 60Hz, 3 Ph., 4 pole, geared motors, fitted to the extended top roll shafts of all 4 mills with the integral crown wheels providing directional drive to the 2<sup>nd</sup> and 3<sup>rd</sup> mill rolls. 'Fail Safe' pinion drive guards with expanded metal mesh sides and integral 'oil on water' pinion lubrication trays are to be supplied on all crown wheel/pinion drives.</li> </ol>

12. The 4<sup>th</sup> Roll Feeder is to be gear driven from the 1<sup>st</sup> Mill Roll shaft.
13. Manually operated lubrication system for all mill roll bearings including the wear plates for the top roll bearing, with a single grease gun fitting in a distribution manifold at each cheek plate with flexible metal tubing lines to all lubrication points..
14. Three (3) Intercarriers, 45° or less, inclined, 'cleated' intercarrier belt conveyors with molded rubber slats, or Chain & Slat scraper type. Variable speed, shaft-mounted, TEFC, inverter duty, 220/440 volt AC, 60Hz, 3 Ph., 4 pole, geared motors to accommodate the maximum volumetric feed rate of fiber feedstock are to be fitted to each intercarrier head pulley shaft. Individual intercarriers are to be easily removable from between the mills. Feed, outlet and by-pass chutes are to be incorporated into these intercarriers. The outlet chute will be in the form of a hinged flap that when open, will feed the inlet chute of the mill and when closed will by-pass the mill. Construction materials and design of the intercarriers is to be similar and compatible with the 1<sup>st</sup> Mill Feed Elevator (Item 0106).

Materials of construction for these Intercarriers will be:

Conveyor walls:	SAE 1010 cold rolled sheet
Floor:	ASTM A36 structural steel plate
Wall stiffeners:	ASTM A36 structural angles
Support Columns and Beams:	ASTM A36 structural steel H & I beams

15. Three (3) Imbibition Water & Juice Cascade Spreaders – Unchokeable, distribution manifolds over the width of the Intercarriers to provide full width addition of imbibition water and stage juice to the milled feedstock. The design of these manifolds is to provide for even hydraulic distribution over the full width of the feedstock being transported by the Intercarriers and are to be 'self cleaning' as the stage juice will contain fiber particles. Spray nozzles are not acceptable for stage juice recirculation to Mills 1,2 &3, but may be supplied instead of a cascade spreader for Imbibition water addition to the intercarrier feeding the 4<sup>th</sup> Mill.
16. Mill Feed Chutes. Each mill is to be fitted with an adequately sized, 304 stainless steel feed chute with internal ½" radiused corners and highly polished internal surfaces to ensure a constant, un-bridged gravity supply feed of feedstock into the 'nip' of the top rollers.

0202      One (1)      Mixed Juice Screen    – 304 Stainless steel Rotary drum and 0.5mm aperture wedge-wire, juice screen, capable of filtering all mixed juice at a rate of 8 GPM at maximum solids loading (as generated by the mills). The Screen Drum is to be on an adjustable declining axis (5° to 7° to horizontal) to permit optimum axial flow of bagacillo through and out of, the drum and on to the cane being fed into the 2<sup>nd</sup> mill on Item 0201. The screen and support drum is to be without any central shaft and spokes and is to be externally driven and mounted on four polyurethane trunnion wheels. The screened juice is to be collected in a 304 stainless steel, graded juice trough beneath the rotary screen fitted with a 3" NB flanged outlet.

The drive for the screen will be from a 220/440 volt AC, 60 Hz., 3 Ph., TEFC, 4 pole geared motor, through a roller chain and sprocket transmission to the driving trunnion wheels. Drive chain tensioning devices are to be provided to ensure smooth, constant peripheral speed of the screen drum.

A full length, exterior, 150 psi steam cleaning manifold with nozzles is required for intermittent screen cleaning and the removal (back flushing) of fiber particles in the wedge-wire screen.

## ITEM SERIES 0300

### AUTOMATION SYSTEM

Item	Quantity	Description
0301	One (1)	<u>Automation System</u> – The Juice Extraction System will be supplied with a control system that will allow for continuous milling operation to be performed utilizing only two operating personnel. One of these operating personnel will be assigned to operate the front-end loader and will be responsible for providing a continuous supply of feedstock into the hopper. The other of these operating personnel will be assigned to work at the control station and will be responsible for monitoring the status display of the equipment. The automation system control station shall include information about the mass of feedstock running into the system. Setting of throughput desired will be made by operator through the keyboard. Torque and speed of equipment being driven by VFD's will be measured, controlled, and set through the I/O signal. Imbibition water tank, pump and flow meter will be supplied by the customer as well as 3 chokeless pumps for juice and water. Automation of these items shall be included in the contractor's control package. The selected automation software should be easily integrated into any standard automation package and 20% extra I/O modules shall be provided. The automation control system will include a flat panel display, keyboard and mouse, CPU, required interfaces, sensors, cables, connectors, and solenoid valves. The contractor shall supply a Piping and Instrumentation Diagram (P&ID) and a control manual for the Juice Extraction System.

## ITEM SERIES 0400

### GENERAL EQUIPMENT SPECIFICATIONS

Item	Quantity	Description
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1001	Lot	<u>PAINTING.</u>
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#### 1. Surface Preparation

All ferrous metal surfaces, whether visible or concealed, shall be prepared by commercial sandblasting to a National Association of Corrosion Engineers (NACE) 2 near-white blast cleaning. This includes all steel vessels, structural steel, piping and equipment which had been previously 'primed' with unknown coatings.

All galvanized surfaces to be painted shall be treated with a mild acid wash prior to the application of undercoats and final coat of paint. The acid wash shall consist of 2% copper chloride, 2% copper nitrate and 2% sal ammonia thoroughly mixed into one gallon of clean water thereafter adding 2% muriatic acid.

Non-ferrous metal surfaces (Aluminum, Brass & Copper) to be painted shall be thoroughly de-greased with an 'oil and grease cutting' solvent. Immediately after this cleaning, the surfaces shall be treated with B-H fixative, allowed to stand for 15 minutes then rinsed off with clean water and dried thoroughly.

#### 2 Primer Coating

The application of the primer coat shall follow immediately after the surface has been cleaned and prepared as outlined above. Where large surfaces are involved, the application of the primer coat shall follow along as the surface preparation progresses.

All reasonable precautions shall be exercised to avoid painting prior to or during a rain shower or extremely humid conditions. All paint applications are to be carried out in air temperatures above 50°F (10°C) and all paint must be applied evenly and on dry surfaces. Excessive thinning of paints to promote even flow in cold weather is not permitted. Total film (coat) thicknesses shall, in every case, average 4.5 mils with no point being less than 4 mils.

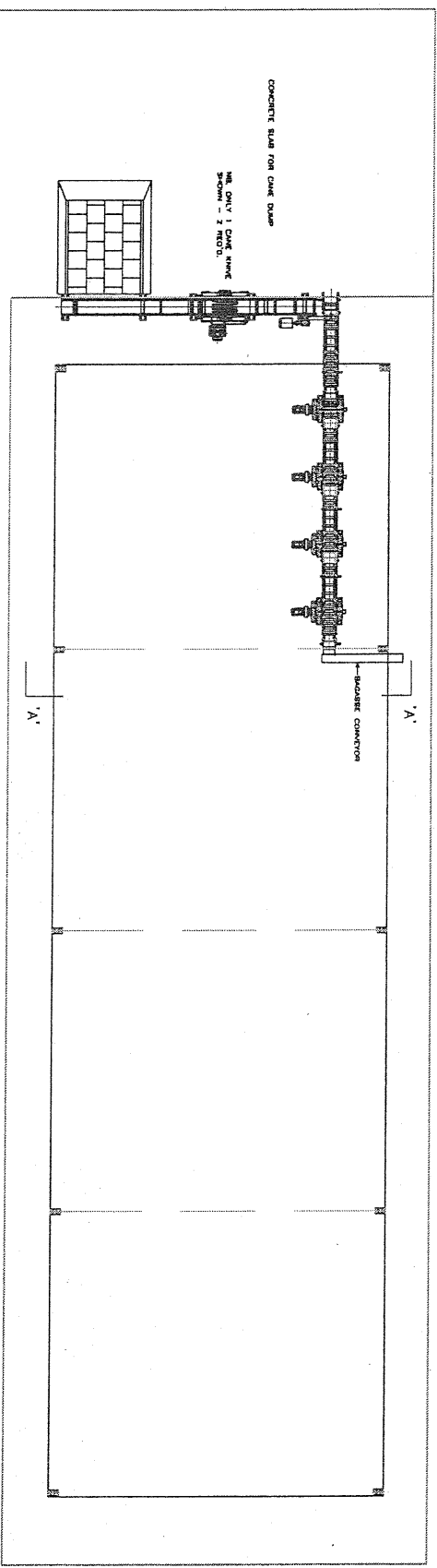
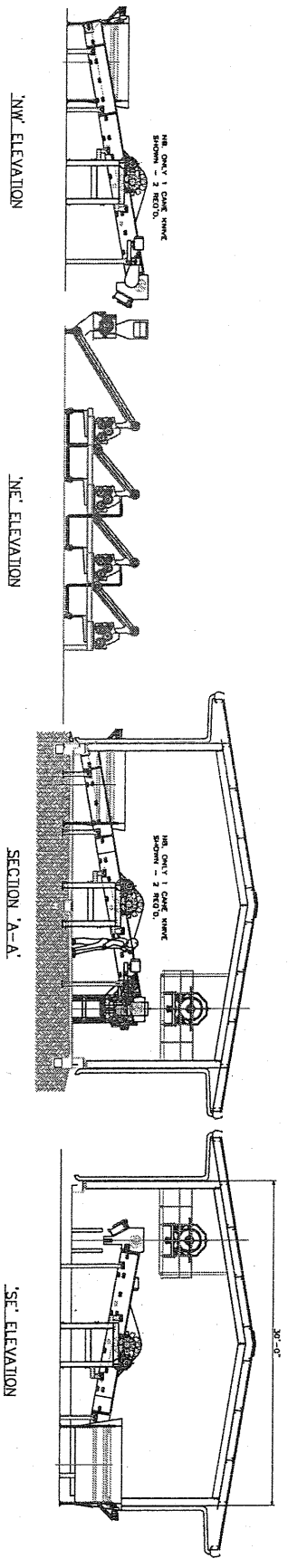
Primer and final coats shall only be applied by air spray, airless spray or brush. Paint application by roller is not acceptable.

Ungalvanized ferrous metal surfaces, after being cleaned and prepared as above, shall be given one coat of Inorganic Zinc Primer or client-approved equivalent.

Galvanized ferrous metal surfaces, after being cleaned and prepared as above, shall be given one coat of client-approved Primer.

3. Finish Coating.

All primed surfaces are to be finished with at least one coat of Hi-Build Epoxoline epoxy system to a minimum dry film thickness of 4 mils or a 'client approved' equivalent. Colors will be specified by the client during or after the award of the contract.



**SITE PLAN**

**NOTE:** Specifications supersede drawing detail. Drawing is provided for illustrative purposes only. General layout changes are possible and need to be discussed and submitted for approval.

DESIGNED		DRAWN		TOLERANCES		TITLE	
R. WRIGHT		(UNLESS OTHERWISE SPECIFIED)		AUDUBON SUGAR INSTITUTE		LSUAgCenter - Saint Gabriel, Louisiana	
CHECKED		ITEM		+/-		Juice Extraction System	
APPROVED		X.X		0.030"			
DATE		X.XX		0.010"			
11-30-2011		X.XXX		0.005"			
SCALE		XXX		1/16"			
PROJECT		AFRI					
SHEET		1					
OF		1					
REVISION		0					

**BOARD OF SUPERVISORS  
LOUISIANA STATE UNIVERSITY AND  
AGRICULTURAL & MECHANICAL COLLEGE  
Purchasing Office, 213 Thomas Boyd Hall  
Baton Rouge, LA 70803-3001**

**INSURANCE REQUIREMENTS**

**WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE:** The Contractor shall, before commencing any work to be conducted under this contract, procure Workmen's Compensation and Employer's Liability insurance with a limit of liability as required by the Labor Code of the State of Louisiana with an insurance company authorized to write such policies of insurance in the State of Louisiana. It shall be the further responsibility of the Contractor to require that all subcontractors have in full force and effect, a policy of Workmen's Compensation and Employer's Liability insurance before proceeding with any of the work required under this contract. The Employer's Liability limit shall be \$1,000,000 when work is over water and involves maritime exposure.

**COMMERCIAL GENERAL LIABILITY INSURANCE:** Commercial General Liability Insurance with a combined single limit of \$1,000,000 per occurrence for bodily injury and property damage. This insurance shall include the following coverage:

1. Premises - Operations;
2. Broad Form Contractual Liability;
3. Products and Completed Operations;
4. Use of Contractors and Subcontractors;
5. Personal Injury;
6. Broad Form Property Damage;
7. Explosion, Collapse and Under ground (XCU) Coverage.

**BUSINESS AUTOMOBILE LIABILITY INSURANCE:** Business Automobile Liability Insurance with a combined single limit of \$1,000,000 per occurrence for bodily injury and property damage, unless otherwise indicated. This insurance shall include for bodily injury and property damage the following coverages:

1. Owned automobiles;
2. Hired automobiles;
3. Non-owned automobiles.

If the vendor/contractor does not own an automobile and an automobile is utilized in the execution of the contract, then only hired and non-owned coverage is acceptable. If an automobile is not utilized for the execution of the contract, then automobile coverage is not required.

Board of Supervisors of Louisiana State University and Agricultural & Mechanical College shall be named as additional insured on all liability policies. A Thirty (30) day prior notice of cancellation must be given to the University for all required coverages. Insurance must be from a company with an A.M. Best's rating of no less than A:VI who is authorized to do business in the State of Louisiana. The A.M. Best's rating requirement may be waived for Worker's Compensation only.

The successful contractor is to provide the owner with a certificate of insurance prior to commencement of work.